STATEMENT OF BASIS

RAIL CAR SIDING SITE SWMU 64
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
KENNEDY SPACE CENTER
BREVARD COUNTY, FLORIDA

PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed to inform and give the public an opportunity to comment on a proposed remedy to address contamination at the Rail Car Siding Site (RCSS)[1]. A Kennedy Space Center (KSC) remediation team consisting of the National Aeronautics and Space Administration (NASA), United States Environmental Protection Agency (EPA), and the Florida Department of Environmental Protection (FDEP) has determined that the proposed remedy is cost effective and protective of human health and the environment. However, before implementing the proposed remedy, the KSC remediation team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as explained in the "How Do You Participate" section of this SB. After the end of the public comment period, the KSC remediation team will review all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy before implementation.

WHY IS A REMEDY NEEDED?

The results of a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) indicated that polynuclear aromatic hydrocarbons (PAHs) listed in Table 1 are present in soil at the site, and could be potentially harmful to human health.

HOW DO YOU PARTICIPATE?

The KSC remediation team solicits public review and comment on this SB before implementing the proposed remedy. The remedy for the RCSS will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) permit for KSC. The public comment period for this SB and proposed remedy will begin on the date of publication for notice of availability of the SB in major local newspapers of general circulation, and end 45 days thereafter. If requested during the comment period, the KSC remediation team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following in writing within the 45-day comment period

The Proposed Remedy

The proposed remedy for the RCSS is:

- Implementation of institutional controls to prohibit residential use.

Timothy J. Bahr, P.G.
FDEP – Bureau of Waste Cleanup
2600 Blair Stone Road, MS 4535
Tallahassee, FL 32399-2400

The HSWA permit, SB, and associated administrative file, including the RFI

1. In accordance with RCRA ♣7004(b), this Statement of Basis summarizes the proposed remedy for NASA's KSC Rail Car Siding Site (RCSS). For detailed information on the site, consult the RCSS RFI report, which is available for review at the information repository located at the North Brevard Library, 2121 South Hopkins Avenue, Titusville, FL 32780, telephone: (321) 264-5026.

Report, will be available to the public for viewing and copying at:

North Brevard Library
2121 South Hopkins Avenue
Titusville, FL 32780
Telephone: (321) 264-5026

To request further information, you may contact one of the following:

Mr. Harold Williams
Remediation Program Manager
Environmental Program Office
Mail Code: TA-C3
Kennedy Space Center, FL 32899
E-mail: harold.williams-1@ksc.nasa.gov
Telephone: (321) 867-8411

Timothy R. Woolheater, P.E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

Timothy J. Bahr, P.G.
FDEP – Bureau of Waste Cleanup
2600 Blair Stone Road, MS 4535
Tallahassee, FL 32399-2400
E-mail: Tim.Bahr@dep.state.fl.us
Telephone: (850) 921-9984

FACILITY DESCRIPTION

NASA established KSC as the primary launch site for the space program. These operations have involved the use of toxic and hazardous materials. Under the RCRA and applicable HSWA permit (Permit No. FL6800014585) issued by the FDEP and/or EPA, KSC was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 64, the RCSS (Figure 1).

SITE DESCRIPTION AND HISTORY

The RCSS is an irregular-shaped area of approximately 42 acres located at KSC on northern Merritt Island, Brevard County, Florida, near the intersection of Kennedy Parkway North (SR 3) and Beach Road (SR 402). The site includes an existing siding of the U.S. Government Railroad, which extends along 39th Street NW from Kennedy Parkway west to F Avenue NW; a second, former siding extended southwest from Kennedy Parkway North (Figure 2). The site also includes the location of a former concrete batch plant used in the construction of the nearby Shuttle Landing Facility.

Railroad cars containing launch vehicle hardware for the Apollo Program were temporarily stored on the existing railroad siding. Some launch vehicle fueling operations reportedly occurred at the RCSS. Currently, railroad cars containing solid rocket booster sections for the Space Shuttle are temporarily stored at the RCSS. Fueling operations are no longer performed at the site. The former railroad siding was used for the delivery of cement and aggregate to the former concrete batch plant. Investigations conducted at the site include:

- 1995: A Preliminary Contamination Assessment was completed. Soil, sediment, surface water, and groundwater samples were collected and analyzed to determine the presence or absence of releases to the environment. The presence of PAHs in soil and sediment samples, and metals in the groundwater and surface water samples indicated the need for further study.

- 1997 – 1999: An RFI was conducted and revealed the presence of PAHs in sediments located north of asphalt-paved Kennedy Parkway North but not in any soil samples. The observed concentrations of PAHs in sediment were relatively low but did exceed risk-based ecological screening levels established by EPA. Various metals (e.g., iron, aluminum, zinc, and chromium) were detected in soil, sediment, surface water, and groundwater across the site at concentrations exceeding the screening levels. Bis(2-ethylhexyl)phthalate also exceeded screening criteria in surface water.

- 2001: NASA conducted a post-RFI supplemental sampling of investigative wells at the site to further evaluate impacts from metals to groundwater. Collection and analysis of less turbid groundwater samples at the RCSS revealed that metals are not present at concentrations above screening criteria or significantly above natural background concentrations.

SUMMARY OF SITE RISK

As part of the RFI activities, a Human-Health Preliminary Risk Evaluation (HH-PRE) was performed in accordance with EPA guidance (Amended Guidance on Preliminary Risk Evaluations for the Purpose of Reaching a Finding of Suitability to Lease, dated November 1997) and NASA guidance ("Approach for the Use of Preliminary Risk Evaluation at NASA Sites"). An Ecological Risk Assessment (ERA) was performed following the Eight-Step Process described in the EPA's Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, 1997, EPA 540/R-97/006. The ERA proceeded through Step 3 of the eight-step process, at which point no unacceptable risks were identified.

The HH-PRE showed the estimated excess lifetime cancer risk for the hypothetical future resident to be no greater than 1.1 in 100,000, and for the industrial worker to be 1.2 in 1,000,000, both of which are within EPA's acceptable range of 1 in 1,000,000 to 1 in 10,000, but above FDEP's risk goal of 1 in 1,000,000. Several PAHs were detected at concentrations that exceed FDEP default cleanup target levels in two soil samples located near the railroad tracks and in three sediment samples located east of Kennedy Parkway North. Statistical evaluation of the data determined that benzo(a)pyrene is the only contaminant that may remain a concern in soil. Benzo(a)pyrene was detected in only one soil sample at the RCSS.

Aluminum and iron in groundwater were determined, based on information obtained during the RFI, to pose a potential concern to the future resident and future industrial worker receptors if, and only if, untreated groundwater is used for drinking water.

Resampling of groundwater at the RCSS revealed that these chemicals are not present at concentrations that would cause unacceptable risk even to the hypothetical consumer of untreated, shallow groundwater (future resident and future industrial worker receptors).

The ERA did not identify any unacceptable ecological risks.

Because benzo(a)pyrene was present in one soil sample at the RCSS at a concentration in excess of the residential and industrial cleanup target levels and remains a concern

after statistical evaluation of the data (Table 1), NASA proposes to prohibit residential use within the area identified in Figure 2.

WHAT ARE THE REMEDY OBJECTIVES?

The remedy is to protect humans from exposure to soil contaminants that exceed FDEP/EPA clean-up target levels by prohibiting residential use of the affected portion of the site. Table 1 lists the compounds of concern (COC) present at the RCSS. The first column lists the chemical name, the second column lists the range of concentrations detected in the soil at the RCSS, and the last column presents the EPA/FDEP cleanup target levels.

Table 1

Site-Related Compound of Concern (COC)	Range of Detections	Cleanup Target Level[1] (residential/industrial)
Soil (mg/kg)		
Benzo(a)pyrene	<0.33 to 2.6[2]	0.1/0.5

1 Chapter 62-777, Florida Administrative Code, for residential/ industrial use exposure.

2 An average benzo(a)pyrene concentration of 0.4 milligrams per kilogram (mg/kg) was computed as the 95% upper confidence limit (RFI Addendum, Rail Car Siding Site, Kennedy Space Center, Florida, Solid Waste Management Unit 64, December 2001).

REMEDIAL ALTERNATIVES FOR THE RCSS

Remedial alternatives are different combinations of plans or technologies to restrict access, and to contain or treat contamination to protect public health and the environment. Because of the very limited nature of the soil contamination, only one alternative was considered for the RCSS:

- Land Use Controls (LUCs).

Land Use Controls: Institutional LUCs would be implemented to limit access to site soils. Residential use would be prohibited where benzo(a)pyrene concentrations exceed the residential cleanup target level (Figure 2). NASA, EPA, and the FDEP have entered into a Memorandum of Agreement (MOA) that outlines how institutional controls will be managed at NASA[3].

The MOA requires periodic site inspection, condition certification, and agency notification.

EVALUATION OF REMEDY

The remedy was evaluated to determine if it will comply with EPA's four threshold, and five balancing criteria for corrective measures. The four threshold criteria are:

- Provide overall protection of human health and the environment;
- attain media cleanup standards;
- control the sources of releases; and
- comply with standards for management of wastes.

[3] *By separate MOA effective February 23, 2001, with the EPA and FDEP, KSC, on behalf of NASA, agreed to implement Center-wide, certain periodic site inspection, condition certification and agency notification procedures designed to ensure the maintenance by Center personnel of any site-specific LUCs deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the Center's substantial good faith compliance with the procedures called for herein, reasonable assurances would be provided to EPA and FDEP as to the permanency of those remedies which included the use of specific LUCs.*

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by NASA, KSC, EPA and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent upon the Center's substantial good faith compliance with the specific LUC maintenance commitments reflected herein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

LUCs meet each of the threshold criteria and have been determined to be protective of human health and the environment.

WHAT IMPACTS WOULD THE REMEDY HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the local community since administrative actions to limit access to the site are consistent with current operating procedures.

WHY DOES THE KSC REMEDIATION TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because it is a cost effective way to prevent exposure to contaminants. The proposed remedy meets EPA's threshold criteria for corrective measures.

NEXT STEPS

The KSC remediation team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy to KSC's HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then a Land Use Control Implementation Plan (LUCIP) will be developed to incorporate the institutional controls.